HPE NONSTOP X NS7

Redefining continuous availability and scalability for x86

Deliver operational efficiency for greater business value

HPE NonStop X NS7 delivers:

- Two times the NonStop CPU density[4] in a single enclosure

- Nearly triple the memory capacity[5] for improved application performance

- Industry-standard InfiniBand as the system interconnect for increased system capacity and lower latencies

- Fully integrated solution stack and proven NonStop fundamentals for industry-leading fault tolerance

- Factory-integrated, fully tested and verified hardware and software solution for out-of-the-box efficiency

[1] IDC, Jan 2018, Doc #US43503817, Worldwide and U.S. High-Availability Server Forecast, 2018–2021

[2] Comparison of HPE Integrity NonStop i ServerNet bandwidth with HPE NonStop X FDR InfiniBand bandwidth, HPE Internal testing, 2020

[3] 6-core licensed NS7 X1 system compared to HPE Integrity NonStop BladeSystem NB56000c licensed at 4 cores, HPE Internal testing, 2020

[4] Compared to NonStop BladeSystem NB56000c with greater than eight NonStop CPUs, HPE NonStop Product Management, 2020

[5] Compared to NonStop BladeSystem NB56000c maximum RAM per CPU, HPE NonStop Product Management, 2020

ENGINEERED FOR THE HIGHEST AVAILABILITY LEVEL

For businesses that never stop

HPE NonStop systems are designed specifically for the very highest availability levels. The industry analyst firm, IDC defines the highest availability as Availability Level 4[1] (AL4), where business processes continue as before. That means no interruption of work and no degradation in performance. For almost four decades, the HPE NonStop architecture remains the ideal choice when there's a need for high level availability and reliability—in compute environments that support continuous business. NonStop enjoys the same dominant position with the IDC Availability Levels, retaining the AL4 level even today, while evolving and revolutionizing the way it is deployed and delivered to customers.

The HPE NonStop X NS7 system extends the 100 percent fault-tolerant HPE NonStop platform to include the x86 architecture. With it, you can leverage a proven solution for uninterrupted business that delivers timeless value regardless of the underlying architecture.

Architectural choice without compromise

HPE NonStop systems provide a deployment choice on either the x86 architecture (Intel® Xeon® processors) for the HPE NonStop X systems or the Intel Itanium® architecture for the HPE Integrity NonStop i systems. Mission-critical customers like you can continue to rely upon HPE NonStop systems, deployed on either architecture, to deliver a resilient business foundation without compromise. HPE has extended the mission-critical NonStop solution to include a virtualized solution that can be deployed in a private cloud environment. This HPE Virtualized NonStop is managed through VMware® based solutions and can be deployed on many industry standard x86 based servers. This software-based solution increases your choice of NonStop systems from the fully integrated and tested NonStop Converged systems to VMware based virtualized IT platform as a service depending on what best suits your specific needs. Whatever your NonStop deployment choices are, you will benefit from the HPE NonStop fundamentals of availability, scalability, security, and data integrity for your mission-critical workloads.

SCALE UP TO MATCH GROWING BUSINESS DEMANDS

Rapid business growth means that mission-critical workloads require an infrastructure that can scale up to match growing business demands, with the capacity to handle processing-intensive workloads.

HPE NonStop X NS7 with InfiniBand delivers more than a 25-time increase in system interconnect capacity[2] for responding to business growth, and more than double the performance capacity[3] to handle intensive transaction volumes. In addition, the NS7 can add capacity online, with near-linear scalability and no application outage.

HPE NonStop systems are architected with built-in clustering, workload balancing, and online management to deliver continuous application availability and meet the most stringent uptime SLAs. HPE NonStop systems scale up to 16 NonStop CPUs within a single system (node), each running its own copy of the NonStop OS, and scale out to 4,080 NonStop CPUs on 255 networked NonStop nodes.

A NEW FAMILY FOR HPE NONSTOP SYSTEMS

Opening up a world of possibilities

Representing the high-end of the HPE NonStop X family, the NS7 systems offers 2, 4, or 6-core software licensing options with more than double the performance capacity licensed at 6 cores when compared to the HPE Integrity NonStop BladeSystem NB56000c licensed at 4 cores. The NS7 combines the economies of newly enhanced, standards-based, modular computing with the trusted 24x7 fault-tolerant availability and data integrity of the HPE NonStop architecture. The enhanced availability, manageability, and development features of NonStop result in a low total cost of ownership (TCO) for hosting mission-critical applications. This applies equally to all generations of the NS7 including the NS7 X1, X2, and X3.

25 times increase in system interconnect capacity

At the heart of the NS7 is a system interconnect based upon industry standard InfiniBand. The NS7 leverages the modular efficiencies of the industry-leading HPE BladeSystem c7000 Enclosure with 4X FDR (Fourteen Data Rate) InfiniBand double-wide switches to create the foundation for the NS7 system interconnect. These switches, based on a dual fault-tolerant switched fabric, provide up to 56 Gbps bi-directional bandwidth to each NonStop CPU and throughout the system for extreme scalability, fabric flexibility, high throughput, and low latency.

Powered by Intel Xeon microprocessors

HPE NonStop X NS7, built on proven HPE ProLiant BL460c server blades, is powered by Intel Xeon microprocessors and with the latest NS7 X3 version supporting up to 256 GB of memory per NonStop CPU, with single system (node) maximum memory capacity of 4 TB . The use of half-height server blades connected by InfiniBand enables the NS7 to double the NonStop CPU density within a single c7000 enclosure.

The advantage of the NonStop software stack

HPE NonStop systems have been designed from day one with an integrated software stack that supports fault tolerance. These systems offer you fully tested and verified hardware and software solutions for out-of-the-box efficiency. The NonStop software stack includes the NonStop OS and the OSS file system, security, system management, middleware, Java and Java-frameworks, a modern development environment, and one of the most scalable fault-tolerant databases in the world.

HPE NonStop X is offered with the L-series version of the NonStop Operating System. The NonStop X software stack has been optimized to take advantage of the x86 architecture and uses InfiniBand technology to improve software performance throughout the system. Security and time synchronization software are included with the NonStop OS.

HPE NonStop SQL/MX and SQL/MP database products are both available on NonStop X with all the latest features for massive scalability. Middleware products are also available, as are Java and Java-related frameworks. HPE NonStop Development Environment for Eclipse (NSDEE) and compilers are enhanced with x86 architecture in mind. If you are new to NonStop you may find the NonStop Eclipse development environment friendly and familiar to your application development efforts on other platforms. NonStop is also taking great strides in the area of application modernization with DevOps. Innovating on the platform is now as flexible and easy as any modern IT platform in your data center since modern DevOps tools such as Git, Ansible and Jenkins can be used to develop applications on NonStop.

Existing NonStop applications running on NonStop X

- Most existing non-native TNS (Tandem NonStop, CISC) applications will run on the NonStop X architecture without change.

- TNS applications can be accelerated to take advantage of the new system's performance using the new NonStop X accelerator.

- Native Intel Itanium applications can take advantage of the new NonStop X compilers and with a simple recompilation run on the new platform.

- Native applications require few, if any source code changes in order to run on the NonStop X architecture.

- In summary, NonStop X is a high-performance environment that fits comfortably into your existing data center, is ready for your mission-critical applications, and is 100% NonStop.

TECHNICAL SPECIFICATIONS—HPE NONSTOP X NS7 SYSTEMS

Processors	2 to 16 NonStop CPUs per system (node) NS7 X1 Intel Xeon E5-2600 v2 series processors NS7 X2 Intel Xeon E5-2600 v4 series processors NS7 X3 Intel® Xeon® Gold 6100 series processors
Core licensing	2, 4, or 6-core software licensing option
RAM	Per CPU—Minimum: 64 GB, Maximum: 192 GB (X1, X2), Maximum 256 GB (X3) Per system—Minimum: 128 GB, Maximum: 3 TB (X1, X2), Maximum 4 TB (X3)
NonStop OS	L-Series minimum RVU L15.08 (NS7 X1) L-Series minimum RVU L16.05 (NS7 X2) L-Series minimum RVU L18.08 (NS7 X3)
System interconnect	4X FDR InfiniBand, up to 56 Gbps bi-directional bandwidth to each NonStop CPU and throughout the system
Communication I/O adapters IP CLIM Telco CLIM	5 Ethernet ports, supports up to four 10GbE (10GBASE-T) and one 1GbE (1GBASE-T) ports or four 10GbE (10GBASE-SR) and one 1GbE (1GBASE-T) ports
Storage I/O adapters Storage CLIM	SAS, Fibre Channel
SAS storage enclosure Storage drives	25 SAS SFF (2.5") drives per enclosure • SAS SFF Solid State Drive (SSD) • SAS SFF Hard Disk Drive (HDD)
Number of cluster I/O modules (CLIMs)	Maximum of 56 CLIMs (IP, Telco, and Storage) Minimum CLIMs for fault tolerance: • Two communication CLIMs—IP or Telco • Two Storage CLIMs
Enterprise SAN	Fibre Channel connectivity for SAN attached (e.g., HPE XP8, XP7, and HPE XP P9500) and tape storage
Racks (H x D x W)	42U rack: 79.00 x 51.19 x 23.54 in. (200.66 x 130.02 x 59.79 cm) 36U rack: 68.84 x 51.19 x 23.54 in. (174.86 x 130.01 x 59.79 cm)
Standard features	Redundant power inputs Redundant cooling
Environmental specifications	
Altitude	Operating: 3,000 m (10,000 ft) maximum Nonoperating: 12,192 m (40,000 ft) maximum
Temperature	Operating: 10°C to 35°C (50°F to 95°F) Nonoperating: • −40°C to 66°C (−40°F to 150°F) up to 72-hour storage • −29°C to 55°C (−20°F to 131°F) up to 6-month storage
Humidity	Operating: 20% to 80% relative noncondensing maximum Nonoperating: 10% to 80%, noncondensing
PDU input voltage (AC input power)	North America/Japan: 200–208V, 24A, single phase North America/Japan: 200–208V, 24A, 3 phase Delta International: 200–240V, 32A, single phase International: 380–415V, 16A, 3 phase Wye

SYSTEM CONFIGURATIONS

Minimum configuration single system (node)	Maximum configuration single system (node)	Maximum configuration (with Expand-over-IP networking)
2 processors	**16 processors**	**255 systems (nodes)**
128 GB memory	**3 TB (X1, X2) memory** **4 TB (X3) memory**	**~765 TB memory (X1, X2)** **~1 PB memory (X3)**

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Training and education
Gain the skills you need with training and certification from HPE. With HPE NonStop training, you will accelerate your technology transition, improve operational performance, and get the best return on your HPE investment.

Our training is available when and where you need it, through flexible delivery options and a global training capability. More trainings and webinars can be found at: nonstop-academy.com

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HPE NONSTOP X—THE PLATFORM FOR YOUR CONTINUOUS BUSINESS

With the HPE NonStop X NS7 system, HPE continues to deliver world-class systems using a collaborative approach to design and build an agile infrastructure. When you add up the scorecard, you realize that the NS7 is a platform you can trust to meet your complete solution requirements. HPE partners with many of the best independent software vendors (ISVs) for mission-critical solutions in many vertical industries—and delivers a complete portfolio of enterprise solutions from leading HPE partners, extending our joint capability and ultimately enhancing your value.

In a world that never stops, you must be there, continuously—because your customers won't wait. HPE NonStop is your product family for continuous business.

HPE POINTNEXT SERVICES

HPE Pointnext Services leverages our strength in infrastructure, partner ecosystems, and the end-to-end lifecycle experience, to accelerate powerful, scalable IT solutions to provide you the assistance for faster time to value. HPE Pointnext Services provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation.

Operational Services
- **HPE Datacenter Care:** HPE's most comprehensive support solution tailored to meet your specific data center support requirements. It offers a wide choice of proactive and reactive service levels to cover requirements ranging from the most basic to the most business-critical environments. HPE Datacenter Care Service is designed to scale to any size and type of data center environment while providing a single point of contact for all your support needs for HPE as well as selected multivendor products.

- **HPE Critical Service:** High-performance reactive and proactive support designed to minimize downtime. It offers an assigned support team, which includes an account support manager (ASM). This service offers access to the HPE Global NonStop Solution Center, 24x7 hardware and software support, six-hour call-to-repair commitment, enhanced parts inventory, and accelerated escalation management.

- **HPE Proactive 24:** Provides proactive and reactive support delivered under the direction of an ASM. It offers 24x7 hardware support with four-hour on-site response, 24x7 software support with a two-hour response, and flexible call submittal.

- **HPE Foundation Care:** Support for HPE servers, storage, networking hardware, and software to meet your availability requirements with a variety of coverage levels and response times.

Advisory & Transformation Services—HPE Pointnext Services designs the transformation and builds a road map tuned to your unique challenges including hybrid cloud, Workload and Application Migration, Big Data, and the Edge. Hewlett Packard Enterprise leverages proven architectures and blueprints, as well as integrates with partner products and solutions. We also engage the Professional and Operational Services teams as needed.

Professional Services—HPE Pointnext Services creates and integrates configurations that get the most out of software and hardware, and works with your preferred technologies to deliver the optimal solution. Services provided by the HPE Pointnext Services team, certified channel partners, or specialist delivery partners include installation and deployment services, mission-critical and technical services, and education services.

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